

# Constitution, Institutions and Models for Economic Growth in Nepal

Keshab Bhattarai\*

University of Hull Business School, UK

## Abstract

Nepal made significant progress in removing monarchy and terrors of Maoists in the last decade. It however lacks a stable solution of speedier economic growth and development as the major political parties were not able to promulgate a constitution by Jan. 22, 2015 from the Constitution Assembly of Nepal (CAN-II) that was reelected on November 19, 2013 after the demise of CAN-I on May 28, 2012. The multiparty structure that evolved in Nepal after 2006 revolution has not been able to focus on broader objectives of national development, alleviation of poverty and speedier economic growth and design of programmes suitable to multi-ethnic, multi-climatic and multi-cultural and multi-linguistic inclusive frameworks. The constitution should be promulgated with public consultation and consensus among political parties as soon as possible. Political parties should have a dynamic model for the well decentralised economy to update their beliefs on how to transform themselves to enhance the wellbeing of all people in Nepal.

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\*Paper presented at the bi-annual AIEFS conference on August 5, 2015, at the University of Hyderabad, Tilangana, India. I acknowledge a brief phone conversation with honorable Sher Bahadur Deuba, MP of CAN-II, former PM and the Senior Leader of Nepali Congress on this matter. However I take full responsibility for any issues that may arise due to opinions expressed in this paper. Address: Business School, University of Hull, HU6 7RX, Hull, UK; email: K.R.Bhattarai@hull.ac.uk.

# 1 Introduction

The Second Constituent Assembly of Nepal (CAN - II) aimed to promulgate a new constitution for the federal republic of Nepal on Jan. 22, 2015 has been able to circulate a draft constitution of Nepal for public consultation in the middle of July 2015. It took a mighty devastating earthquake of April 25, 2015 killing nearly 8500 people and the massive collateral damages of houses and infrastructure across the country to wake up political parties on the urgency to speed up for drafting a constitution in Nepal. Parties were able to forge a consensus among the four major issues that caused the total failure of the first CAN-I after four years' of its tenure on May 28, 2012 and that the NC, UML and UCPN very ineffective in delivering their promises in early July 2015. It is increasingly likely the constitution of Nepal will be promulgated by the CAN-II by the Autumn term of 2015.<sup>1</sup> Four issues that took so much attention were :

1. Restructuring of state: what should be the number of provinces and what should be their names in the federal democratic system of Nepal?
2. Form of the governance: should it be a presidential or parliamentary form of

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<sup>1</sup>When the members of the Maoists led coalition of opposition parties protested violently in the assembly on Jan 22, 2015, it was clear their intention was not for a solution of the current problem but to create chaos, tensions and disruptions. They still have not transformed themselves the basic principles of democracy but still continue to day-dreaming of a totalitarian system with their full control of all parts of the government.

the polity?

3. Election system: should representative of people be elected on the basis proportional representation system or on the basis of the first past the post (FPTP) election system? what should be timings of elections?
4. Justice system: what should be its form and how to insure its independence?

The deadlock created by "the mutual distrusts, lack of sufficient homework and over concentration on negative criticism to disrupt any good initiative" seems to have broken because of these urgent need for speedy economic recovery in the wake of outpouring of international assistance for the victims of the earthquake.

## **1.1 Realities**

Nepal is a very heterogeneous country not only in terms of rugged topography and ethnographic landscape with Mountains, Hills, Valleys and Tarai regions but different ethnic group settlements concentrated in different parts of the country. The current structure of unified Nepal originated in "baise-chaubise rajya -(22 and 24 principalities)" before the unification of modern Nepal around 1769. Ethnic groups such as Limbuwan, Bhojpuri-Mithila, Sherpa, Newa, Awadh, Magarat, Khas Arya, Tharuhat, Dotel retain their identity and culture in specific regions. Should the new

federal Nepal, be divided in provinces on the basis of ethnicity? Will it create new problems or even lead to civil wars if different groups enter into conflict in sharing natural resources including rivers, forests and mountains?

Nepal should learn from the recent referendum in Scotland. The whole nation can disintegrate if provinces want political independence. It will certainly be difficult for Nepal to achieve faster growth rate in the the rest of the 21st century with discontents among sub-national groups. Division of provinces in federal Nepal may not decentralise political and economic power as intended but will create extra problems and tensions and misuse of scarce economic resources. While the decentralisation aims to empower ordinary citizens in making decisions about their daily lives at local level, there is a danger that they may be drawn into unnecessary conflicts if such divisions are not according to economic realities. Decentralisation has been successful in many advanced countries. The model of decentralisation in the Western Europe, particularly of Switzerland, shows how the decisions taken by elected assemblies in provinces are far superior to those taken in the capital city. Decisions relating to the provision of basic public services including education, health and provision of water, electricity, gas, or developing literature, culture and traditions are more efficient at the local level within the broad parameters set by the central government. Local elected assemblies are closer to the people.

How many provinces should a federal Nepal have? Draft constitution has declared creation of eight provinces. Smaller states cannot attract larger investments required for speedier growth. Therefore it is better to be very cautious about the number of states. It is important to understand that the size of markets become important in reaping the scale and scope and realising profitability of investment projects and administrative cost multiplies with the number of states. Number of states was one of the most contentious issues among the political parties. Maoists party opting for ten to eleven provinces and others for five to seven. Eight was the agreement on the middle. Now the Federal Commission is to decide the boundaries and the names of states within the six month of the promulgation of constitution. It would obviously be better if the name and boundaries were decided before the promulgation of the constitution.

Compare the size of states in India and provinces in China. Total population of Nepal (now in about 30 million) about 14.6 percent of the Uttar Pradesh (204.2 million), 29.1 percent of Bihar (103 million) and 32.2 percent of the West Bengal (93 million). Similarly Guangdong (105.9 ml), Shandong (96.9 ml), Henan (94.1 ml) and Sichuan (85 ml) provinces of China have population more than three times of entire Nepal (Tibet (3.1 ml) is about 10 percent of Nepal). Dividing the markets for goods and services and factors of production in Nepal in less than four million

people does not seem economically prudent.

Why should the form of governance matter so much? Nepal's neighbor India has a very successful parliamentary system and China is doing very well economically under the presidential system. The United States is a good example of presidential system and the UK is a very successful parliamentary democracy. The separation of power and functions among the legislative, executive and the judiciary is working well in all of these democratic countries no matter under the presidential or parliamentary system. Given the heterogeneity of population, it might be optimal to choose the parliamentary democracy system in Nepal to decentralise power more than in a presidential system. What matters for stability is clear jurisdictions among the wings of the government in the centre and the provinces and villages in the regions and local areas. Individuals should know their roles, responsibilities and limitations clearly while being part of the nation.

### **1.1.1 Structure of the Parliament**

As has been seen in the last two elections for CAN-I and CAN-II, electoral system is to have combinations of the the first pass the post (FPTP) and the proportional election system. The parliament now consists of the House of Representatives (lower house) and the National Assembly (upper house). Lower house is made of 275 members, of which 165 are directly elected from parliamentary constituencies on the

FPTP basis and 110 members elected according to the proportional representation. This number is about 35 percent above the 205 member parliament elected on May 12, 1991. Then the upper house small one with 45 members, five from each of eight provinces, another five nominated by the president from specialists in various fields to represent the national interest. This way each parliamentarian represents about 1.1 lakh people. This may be a very affordable parliament that can focus on promulgating rules and regulations required to run the country particularly for the speedier economic growth. It also provides sufficient numbers to the cabinet and committees in the parliament at the central level and for committees at the local bodies. The parliament should elect the most capable person as the president on a non-partisan basis who is responsible for all people equally. He should have some emergency and contingency powers to defend the state. This sort of arrangement could work very well also in Nepal as it has worked so well in India.

### **1.1.2 Electoral system and Judiciary**

There is little room for any controversy about the nature and functions of the election commission. Its main function is to arrange smooth and fair election and declare votes obtained by the candidates and select the winners. Its major duties include maintaining the accuracy of the voter's list and checking the credentials of candidates claiming to represent the people, count votes and declare winners and losers on the

basis of votes they are able to secure in the election.

The major function of a judiciary is to ensure the system of justice in the country. Judges of the Supreme Court have played very important roles in defending democracy in Nepal. From time to time since 1990 independent judiciary has protected the democracy in Nepal when the political agreements were collapsing bringing the whole country in the darkness. Government of bureaucrats was much more efficient than the elected one in conducting free and fair general election on November 19, 2013. The parliament of Nepal was reinstated in 2006 by a decision of the Supreme Court; the government led by the Chief Justice of the Supreme Court conducted successful election for CAN-II when the CAN-I was dissolved without any result. There should be no doubt that judiciary should be independent and run by the professionals so that it can break deadlocks when the parliament is hung and the political parties cannot reach any decisions.

### **1.1.3 National consensus**

Each of the above four issues did not become very complicated to reach into a national agreement when the political parties became keen in promoting the welfare and development of common people. Apparently different ideological positions of these political parties that are hindrances, controversies and the power struggle were set aside. Trust among each other and true will and sense of urgency for the national



development from political parties after the earthquake was phenomenal. Every person thinks that the first priority had been to form a consensus of all parties for the new constitution, Nepal could already have moved many mines in process of growth and development. Agreement with Maoists avoided a fragmentary approach of using 64.1 percent votes of NC and UML along with other minor parties to bypass Maoists with 14.3 votes in CAN-II.

Consensus is the best solution as it can be expected to initiate an era of credible and cooperative relations among the major political forces and to bring the ultimate political stability required for the speedier growth process in Nepal. Not having a consensus however is going to initiate a new round of political tensions or troubles resulting in wastage of scarce national resources that could be employed for economic growth. Despite being a hung assembly the current consensus of CAN-II allows further refinement on the theory of agreements to protect Nepal and to prevent is being a failed state.

## **2 A theory of explanation of disagreements**

The major concern of the majority in Nepal is economic development. Millions of young people need to go abroad for education and employment. Private sector enterprises have not flourished and are unable to increase the rate of investment

despite plenty of opportunities in basic industries such as hydro-energy, tourism, education, health and communication. Nepal is among the least developed countries in the world not because she does not have enough resources but because these are not utilised properly. In the last three hundred years till 1950 it was completely feudalistic state cut off from the world. Some incremental steps for modern growth started then but these were very minimal and beset by the political instability in recent years. While dissolution of parliament in 1960 was due to conflict of interest between then king and popularly elected BP Koirala. Then another 30 years till 1990 were sort of direct rules by the king and his deputies under the extractive system. Reinstatement of parliamentary system in 1990 was beginning the process of inclusive growth that was terminated in 1960 but could not be stable and was disrupted by Maoist conflicts and wars along with the royal coup and take-over of power in 2002. King dissolved the parliament in 2002 and imposed direct rule till he was relinquished of all powers by 21 day popular protests in April 2006. This was possible because of the joint alliance of NC, UML and Maoist parties.<sup>2</sup>

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<sup>2</sup>The King relinquished all powers that he had snatched away from the people by reinstating the House of Representatives (HOR) on the eve of 20th day of protest on April 25, 2006 organised under the joint initiatives of all political parties including the Maoists. This historic revolution in Nepal swept away the institution of monarchy for good. Then the CAN-I was elected with 601 members on May 28, 2008 and CAN-II on Nov 22, 2013.

#### **2.0.4 Emperor's new clothes**

Politicians are playing a sort of emperor's new cloth game with the people in writing and promulgating the constitution. As constitution sets the rules of formation of all political and economic institutions it is obvious that no long term decisions can be taken until the constitution is promulgated. The 12 point agreement for the complete restoration of democracy in Nepal signed in November 2005 by three major parties have not yet been fulfilled. Political parties were united to eliminate monarchy but they have not agreed to share the political power. Why has this power game been proven so tense and fruitless so far? Expectations of the people have been forgotten and this long phase of transition has been very painful. What causes this? While KP Bhattarai the PM of the interim government after the restoration of multi-party democracy with a constitutional monarchy on 16 April, 1990 was able to forge a consensus for a new constitution within a year terminating the partyless Panchayat system that resulted from the royal coup of the parliamentary system initiated in 1960, why has taken political parties to come into such an agreement? Was it because Maoists did not exist at that time? How much this is due to changes in the fundamentals and how much of it is due to inefficiency of the politicians? This is an interesting question.

First reason for a stalemate is lack of trust and credibility among members of

the political parties. It is true that Nepal is a multi-ethnic, multi-lingual country with spread in Mountains, Hill and Tarai, surrounded by India in the East, South and West and bordering to the Tibetan autonomous regions of China in the North. Historically it is said that Nepal is a country of 4 classes and 36 ethnic groups. This creates heterogeneity among population; for instance languages and cultural system are different among Rai, Limbu Sherpa, Bahun, Chhetri, Newar, Yadav, Tharu, Khas, Magar, Gurung and other ethnic groups. Then villages and valleys vary by geographic locations. Mountains, Hills and Tarai and have different natural set-ups and different requirements. Then each of the political parties have created a clientele in each of these groups. No single solution applies to all these elements when the political and economic interests are different. Given this situation the constitution should set up a broad framework which is flexible enough to accommodate the need of each of these groups. Wasting time on the basis of pure ideological and unrealistic paradigms does not lead to a solution. Why have not Buddha's teaching of peaceful coexistence been applied at the national level? A solutions in such circumstances should build on good things from each party or groups. Some compromise is essential on the basis of coexistence and development of all within the given constraints. A commitment to good institutions based on logics and rationality and more scientific methods of decision making for the growth and development of the whole nation only

can bring one to such outcome.

### 2.0.5 Beliefs: What do they care about?

There are  $N$  parties in the country indexed by  $i = 1, \dots, N$ . These parties represent different constituencies. Each party  $i$  is interested in its own pay-off  $x_i$  (e.g the number of ministries it should have under its command) which it computes using a payoff function  $U_i$  that depend on strategies available to players and its information set about the reactions of other players:

$$x_i = U_i(S_1, S_2, \dots, S_n; a_0, a_1, a_2, \dots, a_n) \quad (1)$$

where  $S_1, S_2, \dots, S_n$  denote the strategies available to players,  $a_0$  is common knowledge, and  $a_1, a_2, \dots, a_n$  denote the unknown characteristic of player  $i$ . Each player knows which strategy is better for it given the strategy space of other players but they have less information about the reactions of other players,  $a_j$ . They make some subjective estimates about other's actions while calculating its payoff  $x_i$ . This value gives their reservation or threat point in bargaining. The agreement takes place when actual bargaining and negotiation ends up giving  $z_i$  and when this value is greater than or equal to what the party  $i$  had expected,  $z_i \geq x_i$ . Negotiation breaks down whenever  $z_i \leq x_i$ .

Parties need to learn from each other to create a more realistic beliefs ( $b_j$ ) about other players replacing unknown characteristics ( $a_0, a_1, a_2, \dots, a_n$ ) by more accurate representation parameters ( $b_0, b_1, b_2, \dots, b_n$ )

$$x_i = L_i(S_1, S_2, \dots, S_n; b_0, b_1, b_2, \dots, b_n) \quad (2)$$

Beliefs on these parameters could be formed on the basis of history, principles and values of parties and key personalities of the party and studying their relations to other players. Convergence on beliefs among all parties occurs when they understand and trust each other. This gives credibility to the outcome of the game. Equilibrium in such case is more certain and efficient and generates greater payoff for parties and welfare of the country.

$$\max \sum_{t=0}^{\infty} \theta^t x_{i,t} = \sum_{t=0}^{\infty} \{ \theta^t L_i(S_{1,t}, S_{2,t}, \dots, S_{n,t}; b_{0,t}, b_{1,t}, b_{2,t}, \dots, b_{n,t}) \} \quad (3)$$

The evolution of the belief system should be consistent to a dynamic general equilibrium model that shows trade-offs growth and redistribution in Nepal objectively based on its structure of consumption, production, trade and the public policy. This model need to be modified for the evolving economy within the federal democratic system Nepal. No such effort has been carried out before.

### 3 Dynamic model

Let us consider a model of Nepal with urban and rural households located in various economic regions of this country. Each of them allocate their life time income to maximize utility by choosing an optimal path of consumption and saving. These households provide factor services to producers of goods and services, who sell products both in domestic and foreign markets. The capital stock, determined overtime by the volume of savings and investment, complements labor input. In central case, we assume that labor force grows exogenously. Output expands along with increase in labor and capital inputs, its level is consistent with the demand of consumers, investors, the government and foreign sectors.

#### Consumers' Intertemporal Problem

In the model representative households located in urban and rural areas of the economy allocate lifetime income to maximize utility over an infinite horizon; i.e.

$$\max \sum_{t=0}^{\infty} \beta^t U(C_t^h) \quad (4)$$

where  $\beta$  is the the discount factor, and it depends on the rate of time preference;  $C_t^h$  is composite consumption;  $U$  is a time separable utility function. We choose a

constant relative risk aversion (CRRA) CES utility function to represent  $U$  in (1).<sup>3</sup>

$\sigma = 1$ ,  $U(C_t) = \log C_t$ .

$$U(C_t^h) = \frac{(C_t^h)^{1-\sigma} - 1}{1-\sigma} \quad (5)$$

here  $1/\sigma$  measures the elasticity of substitution between the present and future consumption. The smaller is  $\sigma$  the more slowly marginal utility falls as consumption rises, so households are more willing to allow changes in consumption over time. Thus smaller  $\sigma$  implies higher elasticity of substitution between current and future consumption or the higher degree of consumption smoothing and substitution over time.

Each type of households faces an inter-temporal budget constraint which implies that its the present value of consumption cannot exceed its present value of life time income (wealth).

$$\sum_{t=0}^{\infty} R_t^{-1} P_t C_t^h = W H^h \quad (6)$$

where,  $R_t^{-1} = \prod_{s=0}^{t-1} \frac{1}{1+r_s}$  is a discount factor to convert future expenses in the present value terms;  $r_s$  represents the real interest on financial assets;  $P_t$  is vectors

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<sup>3</sup>When



of relative prices, and  $C_t$  is composite consumption goods, which is composed of sectoral consumption goods,

$$C_t = \Pi_i = 1n C_{i,t}^{\alpha_i^h} \quad (7)$$

where  $\alpha_i^h$  gives the share of spending on good  $i$  by household  $h$ .  $WH_h$  is the life time wealth of household  $h$  and is defined as:

$$WH_h = \frac{J_0^h}{1 + r_0^c} + \frac{J_1^h}{(1 + r_0^c)(1 + r_1^c)} + \dots + \frac{J_2^h}{\Pi_s^h(1 + r_0^c)} + \dots = \sum_{t=0}^{\infty} R_t^{-1} J_t^h \quad (8)$$

where  $J_t^h$  is disposable household income in period  $t$ . It includes labor and capital income plus transfers.

We combine equation (1) to (4) to form Lagrangian of consumers' the inter-temporal allocation problem in (5).

$$\mathfrak{S}^h = \sum_{t=0}^{\infty} \left( \frac{1}{1 + \rho} \right)^t \left( \frac{C_t^{h1-\sigma} - 1}{1 - \sigma} \right) + \lambda \cdot \left[ \sum_{t=0}^{\infty} R_t^{-1} P_t C_t^h - WH_t^h \right] \quad (9)$$

Here,  $\lambda$  is the shadow price of income in terms of present value of utility, and  $\beta$  in (1) is replaced by  $\frac{1}{1+\rho}$ , where  $\rho$  is the rate of time preference. We derive consumption function by taking first order condition on (5):

$$\frac{C_{t+1}}{C_t} = \left( \left( \frac{1+r_t}{1+\rho} \right) \frac{P_t}{P_{t+1}} \right)^{\frac{1}{\sigma}} \quad (10)$$

or using a steady state assumption on the growth rate

$$C_{t+1} = \left( \left( \frac{1+r_t}{1+\rho} \right) \frac{P_t}{P_{t+1}} \right)^{\frac{1}{\sigma}} C_0 (1+g)^{t-1} \quad (11)$$

Thus the consumption level at time  $t$ , in the steady state, is a function of growth rate, the rate of interest and intertemporal prices of commodities. Consistency of the intertemporal budget constraint implies that:

$$\sum_t R_t^{-1} [C_0 + \Omega_1 C_0 + \Omega_2 C_0 + \dots] = WH^h \quad (12)$$

where

$$\Omega_t = [\beta^t R_t^{-1} \frac{P_t}{P_0}]^{\frac{1}{\sigma}} \quad (13)$$

Economy wide savings is total of household savings,  $S_t^h$ , which in turn is the portion of income not consumed :

$$S_t = \sum_h S_t^h = \sum_h J_t^h - \sum_h C_t^h \quad (14)$$

The consumption saving decisions are two sides of the same coin. Once we know the level consumption we also know the level of savings. Saving like consumption is influenced by the rate of interest prevailing in the economy and the time preference of individuals. The efficiency in the financial system can contribute to rise in the level of saving, depending upon the value of  $\sigma$ , by influencing the decision between the current and future consumption and reducing the wedge between the cost of capital to investors and gains received by the savers.

Savings of households are intermediated through the financial institutions to investors, who use those savings to purchase investment goods from different sectors. Like consumers investors in each of  $n$  production sectors solve an intertemporal profit maximization problem. They combine goods produced in a set of  $n$  sectors to deliver an unit of investment in sector  $j$ . Therefore, the unit cost of investment in sector  $j$  is a weighted average of the prices of components of sector  $n$  goods used for investment purpose. One unit of investment at period  $t$  produces once unit of capital stock in period  $t+1$ :

$$\prod_{j,t}^I = P_{j,t+1}^k - \sum_i P_{i,t} a_{i,j}^I \leq 0 \quad (15)$$

Here  $\prod_{j,t}^I$  is profit from one unit of investment at period  $t$ ,  $P_{j,t+1}^k$  is the price of capital in period  $t+1$ , and  $a_{i,j}^I$  is the investment coefficient matrix. One unit of

capital at the start of period 1 generates a rate of return(  $r_{j,t}^k$ ) today and delivers  $1-\delta$  unit at the start of the subsequent period. The arbitrage condition in capital accumulation implies that:

$$\prod_{j,t}^k = (1 - \delta)P_{j,t+1}^k + r_{j,t}^k - P_{j,t}^k \leq 0 \quad (16)$$

Entering capital ( $K_0$ ) stock is transferred into initial capital stock for the various sectors,  $K_{i,0}$ , according to a fixed coefficient transformation process. Once the initial capital is allocated among different sectors,  $K_{i,t}$ , the law of motion of capital in a sector is explained by the following equation.

$$K_{j,t+1} = I_{j,t} + (1 - \delta_K)K_{j,t} \quad (17)$$

where,

$$I_{j,t} = \sum_{j=1}^J a_{i,j}^I I_{j,t} \quad (18)$$

Net investment demand,  $I_{i,t}$ , in each sector is the sum of investment by origin. The relationship given by  $a_{i,j}^I$  is called capital coefficient matrix of the economy.

We assume that in the terminal period the investment in each sector grows at the rate of the population so that economy can continue along the steady state growth path even after the terminal period as given by the following equation.

$$I_{j,t} = (g + \delta_{K,j})K_{j,t} \quad (19)$$

$g$  =growth rate of the economy, which equals the growth rate of the labor force in terms of efficiency units, and  $\delta_K$  = rate of depreciation.

Holding aggregate stock of capital fixed to the savings of households in the beginning of each period, the objective of firms in  $j$ th sector of the economy is to maximize the present value of profit subject to the constraints of production technology. Zero profit for sector  $j$  written in dual form in terms of composite prices of commodities and inputs is the following form (See appendix for details):

$$\Pi_{j,t}^y = [(\theta_j^x PX_{j,t}^{1+\eta} + (1 - \theta_j^x) PD_{j,t}^{1+\eta})]^{\frac{1}{1+\eta}} - \theta_j^v PV_j^v - (1 - \theta_j^v) \sum_j a_{i,j} P_{i,t} \leq 0 \quad (20)$$

The exact meaning of the symbols of the above profit function are following:

$\Pi_{j,t}^y$  unit profit of activity in sector  $j$

$PX_{j,t}$  price of exports

$PD_{j,t}$  price of domestic sales

$PV_j^v$  price of value added per unit of output in activity  $j$

$P_{i,t}$  price of final goods used as intermediate goods

$\theta_j^x$  share parameter for exports in total production

$\theta_j^v$  share of costs paid to labor and capital

$a_{i,j}$  input output coefficients.

This equation (20) is an unit profit function. The profit of operating these firms are given by the differences between the revenue from sales and the cost of supply. The unit revenue function is constant elasticity transformation (CET) composite of unit price of domestic sales and unit price of exports. The unit costs are divided between value-added, i.e. payments to labor and capital, and the unit intermediate input costs. In this model, the gross output in each sector is given by a nested production function between the value added and the intermediate inputs.

$$Y_{j,t} = \min(V_{j,t}, a_{i,j}Y_{j,t}) \quad (21)$$

Where  $Y_{j,t}$  is the output of sector j in period t,  $V_{j,t}$  is the value added part and  $a_{i,j}$  is the intermediate inputs per unit of gross output produced in sector j.

We use Shephard's lemma to derive the demand for labor and capital from (20).

The demand for labor is:

$$L_{j,t} = Y_{j,t} \frac{\partial \Pi_{j,t}^V}{\partial PV_{j,t}} \frac{\partial PV_{j,t}}{\partial PL_{j,t}} \quad (22)$$

where  $L_{j,t}$  is a composite of rural (unskilled) and urban (skilled) labor. Equilibrium in the labor market requires that demand for labor be equal to supply of labor:

$$\sum_j L_{j,t} \frac{\partial \Pi^L}{\partial P L_t^{LC}} \leq \bar{L}_t \quad (23)$$

$\bar{L}_t$  in the above equations is a composite of urban and rural labor. The ratio of urban to rural labor employed by firms mainly depends upon the ratio of urban to rural wage rates.

The demand for capital in sector  $j$ , again by Shephard's lemma is given by:

$$K_{j,t} = Y_{j,t} \frac{\partial \Pi_{j,t}^V}{\partial P V_{j,t}} \frac{\partial P V_{j,t}}{\partial P K_{j,t}} \quad (24)$$

where  $Y_{j,t}$  is activity level;  $P K_{j,t}$  is price of capital  $P V_{j,t}$  is price of value added.

In equilibrium the demand for capital is equal to its supply:

$$\sum_j K_{j,t} = \bar{K}_t \quad (25)$$

$\bar{K}_t$  is the aggregate capital stock in the economy, which grows according to the law of motion of capital stock as given by equation 13.  $\sum_j K_{j,t}$  is the total demand for capital by various sectors of the economy.

When an economy is repressed, the arbitrage condition implied by (9)

$$P_{j,t+1}^k = \sum_{j=1}^J P_{j,t} a_{i,j}^I \quad (26)$$

does not exactly hold. There is additional distortionary cost  $\tau_{j,t}$  on top of the cost of materials required for per unit investment. The overall cost of investment is rather given by:

$$P_{j,t+1}^k = (1 + \tau_{j,t}) \sum_{j=1}^J P_{j,t} a_{i,j}^I \quad (27)$$

where  $\tau_{j,t}$  = per unit wedge between the return to saving and the cost of investment.  $P_{j,t+1}^k$  = present value price of sector j capital at the beginning of next period;  $P_{i,t}$  = present value price of sector i commodity at period t.

In repressory situation certain portion of saving dissipates in the process of financial intermediation. Therefore the total investment in the economy less than the total savings i.e. the amount of savings net of intermediation costs. Moreover, additional resources may be available by liquidating the real unproductive assets ( $\Delta RA$ ) of the households and firms.

$$c(S_t - \Delta RA_t) = I_t \quad (28)$$



Here  $c$  is the proportion of saving available for investment purpose, or,  $1-c$  being the cost of financial intermediation. In this model cost of financial intermediation is represented by the distortionary cost of repression.

### 3.0.6 Calibration to a Steady State

In the steady state all sectors of the economy grow at the same rate,  $g$ . The benchmark rate of return is calibrated assuming the non-distorted economy being in the steady state in the base year. Calibration of dynamic component follows the relationship between the current and future prices of capital and investment goods. Specifically, investment produces one unit of capital stock in period 2 ( $P_2^k$ ) from one unit of output in the period one,  $P_1^I$ . The present value of one unit of capital in period 2 is equal to  $(1 - r)P_1^k$ .

$$P_1^I = 1 = P_2^k = (1 + r) P_1^k \implies P_1^k = \frac{1}{1 - r} P_2^k \quad (29)$$

Here  $1-r$  is the discount rate between two periods, and is approximation to  $1/(1+r)$ .

$$\frac{P_{t+1}^k}{P_t^k} = (1 - r) \quad (30)$$

One unit of capital at the beginning of period one earns a rate of return today,  $r_1^k$  and

delivers  $1-\delta$  unit of capital for the start of the next period.

$$P_1^k = r_1^k + (1 - \delta) (1 - r) P_2^k \quad (31)$$

This relationship applies to all other periods included in the model. Using base year prices equal to 1 to  $P_2^k$  and  $P_1^k$  by using relationship between  $P_2^k$  and  $P_1^k$  we get:

$$\frac{1}{1 - r} = r_1^k + (1 - \delta) \quad (32)$$

which gives the cost of capital to be equal to the rate interest plus the rate of depreciation:

$$r_1^k = \frac{r}{1 - r} + \delta \quad (33)$$

. The base-year social accounting matrix (SAM) contains information on capital income  $V_1$  and it is related to rate of return and capital stock,  $V_1 = r_1^k K_1$ . Now substituting for  $r_1^k$  between the steady state interest rate  $r$  and the parameters of the model:

$$K_1 = \frac{V_1}{\frac{r}{1-r} + \delta} \quad (34)$$

Then substituting this value of  $K_1$  in  $I_1$  function the relationship between the investment and capital earning component of value added may be expressed as:

$$\frac{I_1}{V_1} = \frac{g + \delta}{\frac{r}{1-r} + \delta} \quad (35)$$

If the ratio of investment and capital earning ( $\frac{I_1}{V_1} = 1$ ) is equal to one then  $g = \frac{r}{1-r}$  or  $r = \frac{g}{1+g}$ . When  $\frac{I_1}{V_1} \neq 1$ , then the key parameter to calibrate is the rate of depreciation, which can be calculated using the relationship between the interest rate, growth rate, depreciation and earning of capital as following :

$$\delta_j = g \frac{V_j}{I_j - V_j} - \frac{r}{1-r} \frac{I_j}{I_j - V_j} \quad (36)$$

In a repressionary regime the cost of capital is distorted by a repressionary component of intermediation,  $\tau_j$ . This can be expressed as:

$$r_1^k = \frac{\bar{r}_1^k}{1 - \tau_j} \quad (37)$$

here  $r_1^k$  is actual cost of capital,  $\bar{r}_j^k$  is rate of interest in steady state, and  $\tau_j$  is distortionary element in the financial market. The price of capital becomes

$$P_1^k = r_1^k (1 - \tau_j) + (1 - \delta) (1 - r) P_2^k \quad (38)$$

or the cost of capital

$$r_1^k = \frac{1}{1 - \tau_j} \left[ \frac{r}{1 - r} + \delta \right] \quad (39)$$

Now adjusting (26) to take account of distortions in the capital market :

$$\frac{I_1}{V_1} = \frac{g + \delta}{\frac{r}{1 - r} + \delta} (1 - \tau_j) \quad (40)$$

or

$$\tau_j = 1 - \frac{\bar{r}_j^k}{\delta + g} \frac{I_j}{V_j} \quad (41)$$

Thus the spread between the true cost of capital  $\bar{r}_j^k$  and the actual cost of capital  $r_1^k$  depends upon the ratio of investment to capital and ratio of natural rate of interest to depreciation plus the growth rate of the economy.

### **Government Budget and BOP Closures**

In the core part of the model the government's budget is balanced in every period, and, therefore government is not involved in intertemporal savings. This essentially

implies all government expenditure is basically the government consumption.

The sources of revenue for the government are taxes on value added<sup>4</sup>, tariffs on imports, sales taxes, income taxes and capital taxes. Lump sum income taxes are collected from total household income, and such income taxes are assumed to grow at the rate of population growth rate. In addition there are other sources of government revenue such as export taxes, taxes on tourism, revenue generated from import-licensing and refund of excise taxes from India.

Government transfers its revenues to households and firms in the form of consumption and production subsidies, and it also serves domestic and foreign debt. In the core part of the model we assume all sorts of government non-transfer spending to public consumption.

This is an open economy model. We follow standard Armington specification of international trade in this model. For each tradable sectors constant elasticity of transformation (CET) function defines relation between exports and domestic supply, and constant elasticity of substitution (CES) function explains relation between domestic supply and imports in forming a composite good that goes to the utility

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<sup>4</sup>From the fiscal year 1996/97 the government is adopting a value-added tax (VAT) system to replace sales and excise taxes imposed on consumers and producers. Given the self-enforcing mechanism of VAT against other indirect taxes are believed to reduce leakage of tax-revenues, though its implementation seem challenging if one considers illiteracy of 67 percent of population in the country. In ideal conditions revenue generated from VAT and taxes on the final product would be the same.

function of the households. We use two level nests in trade to take account of different natures of trade relations between India and rest of the world (ROW). More detailed discussion of trade specification is available elsewhere (see Bhattarai (1997, 2007) and also the appendix of this paper).

We consider two rules of BOP closure. In the first case no foreign borrowing is allowed; imports need to be paid by exports<sup>5</sup>. In the second case intertemporal borrowing and lending is permitted. It is presented in the form of CAPFLOW scenario in the next section. The elasticities of substitution between domestic and imported products in consumption and the elasticity of transformation between domestic sales and foreign sales are taken based on sensitivity analyses.

Finally, the market clearing condition for goods market is given by:

$$A_{j,t} = C_{j,t} + \sum_{j=1}^{12} a_{i,j} Y_{j,t} + G_{j,t} + \sum_{j=1}^{12} a_{i,j}^I I_{j,t} + DST_{j,t} + TD_{j,t} \quad (42)$$

here  $A_{j,t}$  is total supply in the economy in a sector  $j$  should be equal to sum of various components of demand as given on the right hand side, i.e. the consumption of households:  $C_{j,t} = \sum_h C_{j,h,t}$ , intermediate demands:  $\sum_{j=1}^{12} a_{i,j} Y_{j,t}$ , government demand:  $G_{j,t}$ , investment demand:  $I_{j,t} = \sum_j a_{i,j} I_{j,t}$ , inventory demand:

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<sup>5</sup>. In the model number of sectors trading with placecountry-region India and rest of the world are seven and eight respectively.

$DST_{j,t} = DSTR_{j,t} \cdot Y_{j,t}$ , and demand by tourists:  $TD_t^s$ ; for simplicity we assume that demand by tourists grows at the rate of growth of the economy.

### **Definition of a competitive equilibrium**

A competitive equilibrium is a set of sequences of prices of composite commodities,  $P_{i,t}$ ; prices of domestic goods sold in domestic markets,  $PD_{i,t}$ ; prices of exported commodities,  $PX_{i,t}$ ; prices of capital goods,  $P_{j,t}^k$ ; prices of terminal capital,  $PTK_{j,t}$ ; wage rates for each categories of labor,  $w_{h,t}$ ; prices of government services,  $PG_t$ ; prices of provisions for tourism,  $PT_t$ ; value of transfers to the households,  $PR_t$ ; prices of consumption,  $PU_t$ ; welfare index,  $PW_t$ ; rental rate of capital for each sector,  $r_1^k: \mathbb{R}_+ \rightarrow \mathbb{R}$ , and sequences of gross output,  $Y_{i,t}$ ; total supply of commodities,  $A_{i,t}$ ; sectoral capital stock,  $K_{i,t}$ ; sectoral investment,  $I_{i,t}$ ; exports,  $X_{i,t}$ ; government services,  $GOV_t$ ; level of household utility from consumption,  $U_t$ ; and total welfare,  $W$  such that given these prices and commodities

1. households solve intertemporal utility maximization problems subject to life time income constraints,
2. investors solve intertemporal profit maximization problem subject to arbitrage conditions in capital markets
3. producers solve their profit maximization problem subject to technology and

resource constraints

4. markets for goods and services, labor , capital clear
5. government account constraints are satisfied,
6. balance of payments condition is fulfilled
7. financial markets are in equilibrium

In this equilibrium, consumers have perfect foresight, capital accumulation is consistent with households optimization, income and expenditure balance over the life period. An agent is doing the best he can in light of actions taken by others and actions taken together are technically feasible. This ensures the compatibility of plans of individuals or correspondence between consumers' preferences and firms' technology.

There are mainly two limitations of this model. First, analytical solution of this model is very complex and unrewarding. We rely on numerical methods that generate a set of relative prices consistent with the equilibrium. Absolute prices do not matter in general equilibrium models, it generates the same equilibrium even if all prices are multiplied by a constant. For analyses of model results we basically compare ratios of prices in terms of a numeraire in benchmark and counter-factual scenarios, not the absolute differences in prices.



Second, the model presented here does not contain any adjustment costs or penalties. The role of dynamics in such a model is not to show the pattern of adjustment, but to track the prices of commodities with a multiperiod character, e.g. the capital stock. The model is suitable to study the impact of a certain policy that changes the steady state of the model and thus the growth and welfare of the households over a model horizon.

In spite of these limitations the model is capable of generating results that are interesting from a point of view of a policy maker. We use a welfare index as the criterion for making the best policy choice from the various options available to a policy maker.

### **Measure of Welfare**

General equilibrium solutions are used to compute equivalent or compensating variations in consumer welfare from given changes in policy regimes. In this model the overall welfare is given by sum of utility over periods measured in terms of prices of composite consumption.

$$UW^h = \sum_t^{\infty} P U_t^h U_t^h \quad (43)$$

Here  $UW^h$  is a measure of welfare to household  $h$  for the period of model horizon,

$PU_t^h$  is the price of composite consumption in period  $t$ , and  $U_t^h$  is the utility to a household from consumption of goods and services in the economy.

We use welfare measures in order to quantify the impacts of various policy measures.

A policy experiment that has greater value of  $UW^h$  is more desirable than the one with lower one.

## 4 Interactions of model with beliefs

The process of negotiations among various parties should be based objectively in an economic model as above as it is possible to compute the optimal level of saving, investment, capital formation and growth objectively in such set up. There is little room for illusions, misunderstanding and distrust when the negotiations are based on such models:

$$\max \sum_{t=0}^{\infty} \theta^t x_{i,t} = \sum_{t=0}^{\infty} \{ \theta^t L_i (S_{1,t}, S_{2,t}, \dots, S_{n,t}; b_{0,t}, b_{1,t}, b_{2,t}, \dots, b_{n,t}; M_t) \} \quad (44)$$

## **5 Composition of Constituent Assemblies of Nepal 2013 compared to 2008**

People are principal and MPs are their agents in the principal agent game. When the first CAN dissolved without promulgating a constitution of Nepal on May 28, 2012 people changed their beliefs about the true intention and commitment of the UCPN (Maoists) towards development and their ability to promulgate a constitution of Nepal. They refined their beliefs about the Nepali Congress and UML and other Tarai based parties. This change is reflected in the structure of the second CAN that was elected on November 19, 2013. Still this was a hung CAN as before but the share of the Nepali Congress increased to 33.9 from 19.3 percents and that of UML increased to 30.4 from 18.0 percents. The share of UCPN (Maoist) reduced to 14 from 38.1 percents. The UCPN (M) became weak and is no longer in a position of dreaming a totalitarian system in Nepal. After this verdict parties have committed to promulgate the constitution of Nepal by Jan 22, 2015. Committees in the CAN-II have been able to resolve many disputes but still have not converged in their opinions regarding the structure of governance or that of federal system till the end of October 2014.

Still leaders of Nepal seem to be confused in understanding the basic fact that the gains from the commitment and cooperation should be much larger than of nonco-

Table 1: Members of First Constituent Assembly by Political Parties in Nepal

	Total	Maoist	NC	UML	MPRF	TMLP	Others
Total	601	229	116	108	53	21	74
FPTP	240	120	38	33	29	9	11
Proportional	335	100	73	70	22	11	59
Nomination	26	9	5	5	2	1	5
Percentage	100%	38.1%	19.3%	18.0%	8.8%	3.5%	12.3%
Source: Constituent Assembly of Nepal (CAN).							

Table 2: Members of Second Constituent Assembly by Political Parties in Nepal

	Total	NC	UML	Maoist	MPRF	RPP	Others
Total	601	204	183	84	15	11	103
FPTP	240	105	91	26	4	0	14
Proportional	335	91	84	54	10	10	86
Nomination	26	8	8	4	(0)1	1	(0)3
Percentage	100%	33.9%	30.4%	14.0%	2.5%	1.8%	17.1%
Source: Constituent Assembly of Nepal (CAN).							

operation to form coalition or in releasing that the benefits of dynamic optimisation are far greater than zero sum game being played at the moment. It is important to rethink about the true and realistic social welfare function such as  $W(Y, S)$  where  $Y$  denotes the level of aggregate economic activities and its growth rates and  $S$  the stability of the system, can be one way to redirect resources wasted in the process of unsuccessful coalition formation to bring more efficient and Pareto optimal solution. Reinvigorate the spirits of April 2006 Revolution. It is important to think why Nepal's per capita income is one third of India and about 12 percent of China though it had similar per capita income with them till 1980. Political instability in

the last two decades has been very costly to Nepal. These could have been decades of spectacular growth but turned into the decades of disaster. There cannot be bigger irony than this in the context of Nepal and cooperative strategies of each political party is the only way to sort out this problem. Credibility, respect and commitment only can make this happen.

## **6 Conclusion**

Nepal made significant progress in removing monarchy and terrors of Maoists in the last decade. It however lacks a stable solution of speedier economic growth and development as the major political parties were not able to promulgate a constitution by Jan. 22, 2015 from the Constitution Assembly of Nepal (CAN-II ) that was reelected on November 19, 2013 after the demise of CAN-I a constitution on May 28, 2012. The multiparty structure that evolved in Nepal after 2006 revolution has not been able to focus on broader objectives of national development, alleviation of poverty and speedier economic growth and design of programmes suitable to multi-ethnic, multi-climatic and multi-cultural and multi-linguistic inclusive frameworks as Maoists have not been able to transform themselves adopting democratic norms. NC and UML should move ahead with two third majority to promulgate a constitution as soon as possible. Political parties particularly the Maoists should have a model to

update their beliefs based on dynamic model of decentralised economy rather than sawing seeds of their own destruction.

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